

CLAIMS

What is claimed is:

1. A liquid spraying apparatus comprising a spray gun and a reservoir for a liquid to be sprayed, the reservoir having an outlet connectable to the spray gun to permit the liquid to be withdrawn from the reservoir in use, and the spray gun having integral connector means arranged for non-threaded engagement with co-operating connector means on the reservoir by means of which the reservoir is releasably secured to the spray gun.
2. The apparatus according to claim 1 wherein the spray gun has an integral socket adapted for connection to an outlet from the reservoir.
3. The apparatus according to claim 2 wherein the socket provides a through bore leading to an inlet of the spray gun and the outlet from the reservoir communicates with the inlet when the reservoir is connected to the spray gun for delivering liquid to the spray gun in use.
4. The apparatus according to claim 2 wherein the spray gun has a body and the socket is recessed in the body of the spray gun.
5. The apparatus according to claim 2 wherein the spray gun has a body and the socket is provided in a connector boss arranged to project from the body of the spray gun.
6. The apparatus according to claim 5 wherein the connector boss is formed integrally with the body of the spray gun.
7. The apparatus according to claim 5 wherein the connector boss is formed separately from the body of the spray gun and permanently secured thereto.

8. The apparatus according to claim 2 wherein the reservoir has an outlet opening to a connector tube integral with the reservoir, and the connector tube is received in the socket to connect the reservoir to the spray gun.
- 5 9. The apparatus according to claim 8 wherein the reservoir and spray gun are provided with mateable formations providing a push-fit connection of the reservoir to the spray gun.
- 10 10. The apparatus according to claim 9 wherein the connector tube and socket are tapered so that the connector tube is an interference friction fit in the socket to retain the reservoir on the spray gun.
- 15 11. The apparatus according to claim 8 wherein the reservoir and spray gun are provided with mateable formations engageable with a push-twist action that requires less than one complete turn of the reservoir relative to the spray gun.
- 20 12. The apparatus according to claim 11 wherein the connector tube and socket are provided with bayonet type formations engageable within the bore of the socket.
- 25 13. The apparatus according to claim 11 wherein the spray gun and reservoir are provided with mateable formations engageable externally of the bore of the socket.
- 30 14. The apparatus according to claim 13 wherein the mateable formations include an integral undercut retainer on the spray gun body.
15. The apparatus according to claim 14 wherein the reservoir is provided with an external rib on the connector tube co-operable with the underside of the retainer externally of the socket to secure releasably the reservoir and resist axial separation of the connector tube from the socket.

16. The apparatus according to claim 15 wherein the rib has a helical form so that the connector tube is displaced axially into the socket by engagement of the rib with the lug.
- 5 17. The apparatus according to claim 16 wherein a stop is provided to limit relative rotation and/or axial displacement of the connector tube relative to the socket.
18. The apparatus according to claim 17 wherein the stop comprises an
10 abutment at one end of the rib.
19. The apparatus according to claim 17 wherein the stop comprises a further rib axially spaced from the helical rib.
- 15 20. The apparatus according to claim 8 wherein a fluid-tight seal is provided by interference fit of the connector tube in the socket.
21. The apparatus according to claim 8 wherein the socket and/or connector tube is/are provided with one or more sealing rings, for example O-rings, arranged
20 to provide a fluid-tight seal.
22. The apparatus according to claim 16 wherein a fluid tight seal is provided by axial displacement of the connector tube causing an end face of the connector tube to engage an internal sealing face within the socket.
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23. The apparatus according to claim 14 wherein the socket is provided with an insert for providing the socket with a mateable formation compatible with the mateable formation on the reservoir.
- 30 24. The apparatus according to claim 23 wherein the insert is provided with an external rib co-operable with the underside of the retainer externally of the socket

to secure releasably the insert and resist axial separation of the insert from the socket.

5 25. The apparatus according to claim 24 wherein the rib has a helical form so that the insert is displaced axially into the socket by engagement of the rib with the lug.

10 26. The apparatus according to claim 25 wherein a stop is provided to limit relative rotation and/or axial displacement of the insert relative to the socket.

27. The apparatus according to claim 26 wherein the stop comprises an abutment at one end of the rib.

15 28. The apparatus according to claim 26 wherein the stop comprises a further rib axially spaced from the helical rib.

29. The apparatus according to claim 23 wherein the insert is arranged to block the retainer externally of the socket.

20 30. The apparatus according to claim 23 wherein a fluid-tight seal is provided by interference fit of the insert in the socket.

25 31. The apparatus according to claim 23 wherein the socket and/or insert is/are provided with one or more sealing rings, for example O-rings, arranged to provide a fluid-tight seal.

30 32. The apparatus according to claim 25 wherein a fluid tight seal is provided by axial displacement of the insert causing an end face of the insert to engage an internal sealing face within the socket.

33. The apparatus according to claim 23 wherein the insert is a nylon moulding.

34. The apparatus according to claim 23 wherein a set of interchangeable inserts is provided allowing fitment of any selected one of the inserts to provide the socket with any desired connector formation.

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35. The apparatus according to claims 2 wherein a sidewall of the reservoir defines an opening at one end of the reservoir that forms the outlet and the end of the sidewall is received in the socket of the spray gun to connect the reservoir to the spray gun.

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36. The apparatus according to claim 34 wherein the socket has an annular seat engageable with the end of the sidewall around the opening.

37. The apparatus according to claim 36 wherein the end of the sidewall is located and retained in the socket by an interference push-fit in the socket to secure releasably the reservoir.

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38. The apparatus according to claim 36 wherein the sidewall and socket are provided with complementary non-threaded connector formations to secure releasably the reservoir.

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39. The apparatus according to claim 1 wherein the reservoir is re-usable.

40. The apparatus according to claim 39 wherein the reservoir comprises a rigid pot that is removable from the spray gun and can be cleaned on completion of spraying.

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41. The apparatus according to claim 40 wherein the pot has an openable air vent at the end remote from the connection to the spray gun to allow air to enter as liquid is withdrawn from the pot in use.

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42. The apparatus according to claim 1 wherein the reservoir is provided with a disposable container that can be thrown away after use.
43. The apparatus according to claim 42 wherein the reservoir comprises an outer container and an inner container, the inner container being collapsible as liquid is withdrawn from the reservoir and separate from the outer container so that the inner container can be removed and thrown away after use.
44. The apparatus according to claim 43 wherein the outer container has an air vent at the end remote from the connection to the spray gun to allow air to enter as liquid is withdrawn from the inner container in use
45. A spray gun having a body provided with an integral socket for connecting a reservoir provided with a mateable connector by push fit or push-twist requiring less than one complete turn, and an insert for converting the socket for connecting a reservoir provided with a non-mateable connector.
46. The spray gun according to claim 45 wherein the spray gun body and insert are provided with retainer formations co-operable externally of the socket to resist axial separation of the insert from the socket.
47. The spray gun according to claim 46 wherein one of the retainer formations comprises a rib of helical form and the other retainer formation comprises a projection co-operable with the rib to secure releasably the insert to the spray gun.
48. The spray gun according to claim 47 wherein the rib provides a ramp face that displaces the insert towards the spray gun in response to relative rotation to secure the insert to the spray gun.
49. The spray gun according to claim 45 wherein the insert is arranged to convert the socket for threaded connection to the reservoir.

50. A spray gun having an integral non-threaded connector for mating engagement with a non-threaded connector on a reservoir to connect releasably the reservoir to the spray gun.
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51. The spray gun according to claim 50 wherein the non-threaded connectors on the spray gun and reservoir comprise a socket on one of the spray gun and reservoir adapted to receive a mating connector on the other of the spray gun and reservoir.
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52. The spray gun according to claim 51 wherein the socket is provided on the spray gun and has an internal bore providing an inlet connectable to an outlet of the reservoir.
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53. The spray gun according to claim 52 wherein the outlet of the reservoir is provided by a spout received in the bore of the socket on the gun.
54. The spray gun according to claim 50 wherein connectors are engageable within the bore of the socket to connect releasably the reservoir to the gun.
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55. The spray gun according to claim 50 wherein the connectors are engageable externally of the bore of the socket to connect releasably the reservoir to the gun.
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56. The spray gun according to claim 55 wherein one of the connectors is provided with a rib of helical form and the other connector is provided with a projection co-operable with the rib to secure releasably the reservoir to the spray gun.
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57. The spray gun according to claim 56 wherein the rib provides a ramp face that displaces the reservoir towards the spray gun in response to relative rotation to secure the reservoir to the spray gun.

58. The spray gun according to claim 45 comprising any one of a gravity fed, suction fed or pressure fed spray gun.

5 59. A liquid spraying apparatus comprising a spray gun and a reservoir for a liquid to be sprayed, the reservoir being releasably connectable to the spray gun by means of a quick-fit connector system employing mateable connectors on the spray gun and reservoir wherein the spray gun has a body and the spray gun connector is integral with the spray gun body.

10 60. The apparatus according to claim 59 wherein the spray gun and reservoir define a connection axis when the reservoir is secured to the spray gun.

15 61. The apparatus according to claim 60 wherein the mateable connectors are engaged/disengaged by relative axial movement substantially parallel to the connection axis.

20 62. The apparatus according to claim 60 wherein the mateable connectors are engaged/disengaged by a combination of relative axial movement substantially parallel to the connection axis and angular movement about the connection axis.

25 63. A method of attaching a reservoir to a spray gun comprising providing a body of the spray gun with an integral non-threaded connector, providing the reservoir with a non-threaded connector mateable with the connector of the body, and connecting the connectors to secure releasably the reservoir to the spray gun.

30 64. The method according to claim 63 wherein the connectors are engageable with a push-twist action requiring less than one complete turn of the reservoir to secure the reservoir to the spray gun.